

Trend Study 10-21-00

Study site name: East Sulphur Bench .

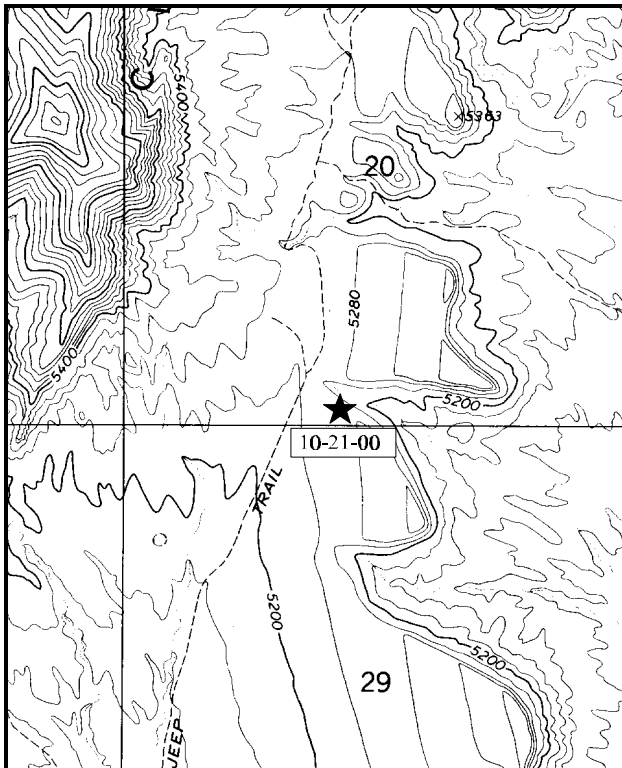
Range type: Big Sagebrush-Grass .

Compass bearing: frequency baseline 165°M.

First frame placement on frequency belts 5 feet. Frequency belt placement; line 1 (11 & 95ft), line 2 (34ft), line 3 (59ft), line 4 (71ft).

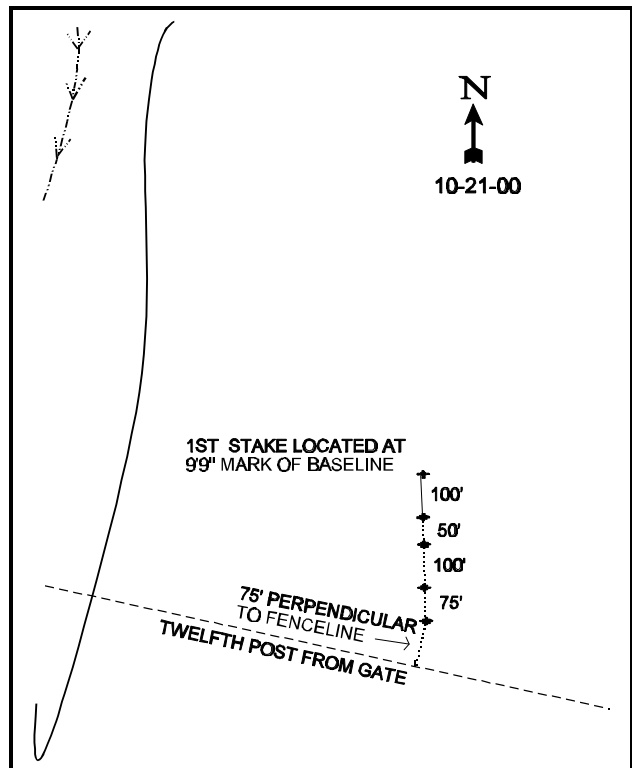
LOCATION DESCRIPTION

Take exit #220 east of Cisco on I-70. Beyond the freeway fence turn left at a fork and go northwest toward the Book Cliffs for 2.15 miles to a fork. Turn right. Go 6.5 miles and turn left at another fork. Go 1.85 miles to the ranch in Sulfur Creek. Make a sharp right turn just before the ranch gate and proceed up the hill 0.25 miles to a gate. Pass through this gate and go 0.9 miles to another gate. Stop here. Walk east along the fence to the twelfth wooden post. The fourth baseline stake is 75 feet to the north. The 0-foot end of the baseline is 325 feet north of the fourth baseline stake, but is not marked by a visible stake. There is a 3-foot tall rebar and rock cairn 9 feet 9 inches south of the actual starting place of the frequency baseline. All plots are marked with rebar stakes and a rebar spike at ground level.



Map Name: Antone Canyon

Township 18S , Range 24E , Section 20



Diagrammatic Sketch

UTM. 4342606 N, 647807 E

DISCUSSION

Trend Study No. 10-21 (16B-8)

*** This trend study was not read in 2000 and is being discontinued. Only text from the 1995 Utah Big Game Range Trend Studies report is included. Consult the 1995 report for maps and data tables.

The East Sulfur Bench transect is located on a bench north and east of Sulfur Canyon at an elevation of 5,200 feet. The study site is a sagebrush-juniper bench sloping to the west and towards the Book Cliffs. On the east side it drops off into sheer rocky cliffs. Numerous small drainages head off the cliffs or drain south into Sulphur Creek. Because runoff is seasonal, the closest permanent water source is in widely dispersed stock ponds. Water is probably not a limiting factor in the winter to domestic livestock or deer. However, year-round antelope use could increase especially if water was available. At this time it is used infrequently by antelope. In 1986, the Sulphur Canyon Allotment allowed grazing by 1,961 sheep from mid-November through mid-April and had a 5 year average (1985-1980) use of 897 sheep. Currently, sheep graze from late- December through late-April for 1,973 AUM's. Judging from pellet group quadrat frequency and hedging, there is only light use by deer.

Soil at the site is classified as sandy and moderately shallow. Rock and pavement cover combine to provide nearly 7% ground cover with much of the rock cover occurring as moderately large rocks which are widely scattered on the soil surface. Estimated vegetative cover is 32% with just over half coming from cheatgrass. Cryptogamic cover was reported high in 1986 (15%), but is now estimated at below 1% with extended drought. There are well defined trails and bare spots, but water erosion is only slight. Percent bare ground cover is estimated at 28% with a few small, active gullies. Litter cover has also declined to 36%, due again mostly to extended drought.

The dominant and key browse species is Wyoming big sagebrush. In 1986, there was an obvious gradient of use and vigor from heavily hedged decadent plants along the road, to lightly used healthy mature plants that were reported further up slope. This gradient may have been due to concentrations of sheep trailing along the road or bunching up at the gate, but this gradient is not as apparent in 1995. There is a fence just south of the transect that separates BLM administered land from private land. Sagebrush across the fence on private land appeared even more heavily utilized and displayed a severely clubbed appearance in 1986 and still appears in the same condition in 1995. The Wyoming big sagebrush density is estimated at 3,100 plants/acre and exhibits a moderate to heavily hedged condition on mature and decadent plants. Over half of the mature plants sampled in 1986 showed insect damage and poor vigor, but now only 7% of the mature plants exhibit these problems. Fourteen percent of the plants were classified as young and 70% were classified as mature in 1995. This is a shift from 1986 when 63% were classified as young and 32% were classified as mature. The proportion of heavily hedged individuals and the rate of decadency has increased. The vigor of the population has decreased overall, with over half of the decadent plants classified as chlorotic or dying.

Mature stands of juniper to the north, east, and west give way to scattered young trees near the transect. Point-center quarter method estimated only 13 trees/acre on the site. Shadscale density is estimated at 340 plants/acre with only mature plants sampled. Fourwing saltbush has a lower density with one out of every five plants sampled classified as dead. Less common shrubs that provide some variety, but limited forage are winterfat, spiny hopsage, and low rabbitbrush. The shrub with the highest density is broom snakeweed with an estimated density of 7,480 plants/acre. The population had an incredible number of seedlings (4,160 plants/acre) counted in 1995. Snakeweed had the highest density, yet it only contributes 12% of the browse cover. This undesirable increaser has an unutilized dynamic population that is taking up resources that ideally could be used by perennial herbaceous species.

As in 1986, there are very few desirable grasses on the site. The sum of nested frequency for perennial grasses has increased with most of the increase coming from bottlebrush squirreltail. All of the perennial grasses by themselves provide only 11% of the total grass cover. A few individual Indian ricegrass and muttongrass plants can be found, but it is the annual cheatgrass that dominates the understory. Cheatgrass accounts for 51% of the total vegetative cover and 89% of the total grass cover. Fall green-up of cheatgrass and its subsequent availability in winter and spring constitutes the bulk of the herbaceous forage utilized by deer. Three perennial forb species were encountered including: scarlet globemallow, longleaf phlox, and *Astragalus*. Perennial forb species have also increased in total sum of nested frequency since 1986. Plantain and prairie pepperweed are the most abundant annual forb species accompanied by several other species that add little to ground cover or forage.

1986 APPARENT TREND ASSESSMENT

The soil trend is basically stable. The vegetative trend is harder to determine. Although the mature sagebrush display heavy hedging and generally poor vigor, there are many vigorous young plants. With a reduction in livestock grazing pressure, the sagebrush, and other shrubs, show the potential to regain vigor and reproduce. The amount of available forage has been reduced by the heavily hedged appearance of the shrubs. The increasing snakeweed is another factor that contributes to the preliminary assessment of a downward trend. Of course, the trend could change with a reduction in browsing pressure and favorable weather patterns. The planned change in season of use by sheep should also favor the perennial grasses.

1995 TREND ASSESSMENT

The Wyoming big sagebrush population appears to be declining at this time. The decadency rate and proportion of heavily hedged plants have increased significantly and at the same time there is a decline in vigor. There are fewer young plants now than reported in 1986 with most of population being classified as mature. Shadscale and fourwing saltbush are in low densities, but could be used as forage. Broom snakeweed is the most abundant browse with great biotic potential this year. Many of the seedlings may not survive, but if they do, this just adds competition for the more preferred species. These factors lead to a downward browse trend. Sum of nested frequency for perennial grasses and forbs has increased since 1986, but cheatgrass dominates the site and was present in every quadrat. This causes great competition for soil moisture along with the prolonged drought for perennial species attempting to become established. The herbaceous understory trend is slightly upward, but still with a very poor composition. Erosion does not appear to be a problem on the site with adequate vegetative and litter cover. There is only a slight slope which does not allow much soil movement and leads to a more stable soil trend.

TREND ASSESSMENT

soil - stable, but only fair condition (3)

browse - downward (1)

herbaceous understory - slightly upward, but poor condition because of the high amount of annuals in the composition (4)